

Clinical Audit on Well Baby Services at Primary Health Care Corporation, Qatar

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Abstract

Background: Regular well-baby visits during the first three years of childhood are critical to identify health, behavioral and development problems that could have long-lasting effects into adulthood. WHO stresses the importance of child health, and states that ensuring the healthy growth and development of children should be the prime concern.

Aim: To ensure that well-baby services provide clinical care according to children's age as per well-baby service protocol within primary health care centers, to find gaps if any and to generate an action plan for further improvement.

Methodology: A retrospective chart review (baseline audit) was conducted on 245 health records of children who attended well-baby clinic for three months (March 01, 2018 to May 31, 2018). Further to the implementation of the action plan, a re-audit with retrospective chart review of 477 health records for three months (June 01, 2019 to August 31, 2019) was conducted to evaluate the improvements in the practice.

Results: Performance for criterion on relevant clinical history taking (feeding and bowel history) has slightly increased from the baseline for each of the following age groups: from 71% to 82% at 4 months, 77% to 80% at 18 months and, 76% to 81% at 30 months, however, a declination was shown at 2

months 88% to 80%. Assessment of developmental milestones at 2, 18 and 30 months of age increased by 5% (76% to 81%), 13% (70% to 83%) and 19% (50% to 69%) respectively and, at 4 months performance remained the same at 69%.

Examination of congenital hip dislocation/abduction has demonstrated a significant improvement where its performance increased by 79% (8% to 87%) at 2 months, and 82% (2% to 84%) at 4 months of age. On the other hand, at ages 18 & 30 months which were not measured in the baseline audit in the re-audit, it was 68% and 45% respectively. Screening for vision at 2 months of age has increased by 13% (78% to 91%), but, there was a slight drop of 10% in the screening of hearing from 86% to 76% at 2 months.

Screening of autism spectrum disorder using a tool in children 18 and 30 months of age dropped from 86% to 83% and from 86% to 75% respectively. Conversely, request laboratory investigation to rule out anemia has increased by 46% (47% to 93%) at 18 months and 61% (23% to 84%) at 30 months.

Conclusions: Impactful audits with actionable recommendations make real difference in practice and compliance. In conclusion, action plans implemented further to the baseline audit are effective in increasing the compliance in most of the areas.

Key Words: Well-baby services audit, primary health care, Qatar

Introduction

Well baby services especially for ages 0-5 years are critical to address behavioral, developmental, social and other health issues for children. These services also give parents confidence that their children have achieved all the developmental milestones(1).

Considering the significance of healthy children, the State of Qatar in its vision 2030 clearly set out the strategic plan on the early years of childhood and recommended various integrated programmes to promote healthy (optimal) child development in infancy, using a combination of parental and familial based interventions backed up by services of primary health center and social facilities(2). To achieve these National Goals PHCC has established a network of well- baby clinics across its health centers in Qatar with a robust guideline and framework adapted from WHO, MOPH and other practice based models.

WHO have promoted well baby initiatives for ensuring proper growth and development of children through early detection of childhood diseases and disabilities, taking appropriate interventions and simultaneously emphasizing on vaccination and breast-feeding practices(1). Therefore, well baby visits are considered essential and can do so much to identify developmental disabilities, and connect parents to early intervention services to ensure that their little ones are healthy and have the best quality of life possible. Well-baby care is one of the important elements of primary care given to children in their early childhood to support healthy child development(3).

Childhood vaccines have a major role in the reduction of the global infant mortality rate from 64 per 1,000 lives in 1991 to 29 in 2018. Vaccines are found to be the most cost-effective approach for reducing childhood disease burden(1,4). Well-baby clinics help to track the vaccination status of the baby and make sure all the vaccinations are given at the right time.

The early detection of congenital problems such as Autism disorders can be managed to some extent if routine checks from 0-5 years are performed. Many studies have shown that early identification and early interventions are associated with more positive outcomes in communication, social interaction and cognitive development(5).

Setting up well-baby clinics is an important way to monitor a baby's growth and development and check for problems. These types of clinics help to track growth of the child, monitor development, follow up on vaccination, establish health trends and provide preventive treatment.

As part of Quality assurance and clinical effectiveness, a clinical audit was planned and conducted to evaluate the effectiveness of services offered by the well-baby clinic in 27 health centers across Qatar and to make recommendations to address the gap, if any.

Two audits were conducted, a baseline audit and a re-audit to assess the change improvement in practice.

Methods

The baseline audit was conducted on three months practice (March 01, 2018 to May 31, 2018). A retrospective chart review of children who attended the well-baby clinic during these three months was conducted. A representative sample of randomly selected 245 electronic records of children (2-30 months ages) were retrieved for review in the baseline audit.

Based on the baseline audit findings action plans were developed such as an official communication via memos to all clinicians to perform screening for congenital hip dislocation/abduction according to child age as recommended in the guideline, refresher training emphasis on assessment of milestone development according to age of the child, use of clinical information system to develop alert functionality for autism screening and laboratory investigation for iron deficiency anemia screening according to child age, arranging group discussion session for mothers on growth and anticipatory guidance by MCH counselor and to re-allocate the counselling duties to MCH and nurses in the well-baby clinic.

As part of the clinical audit cycle the re-audit was conducted to assess the change improvement based on the baseline audit recommendations. In this re-audit a representative sample of 477 electronic records were retrieved to review the practice for the period from June 01, 2019 to August 31, 2019. An agreed criterion was derived from the applicable PHCC Guidelines and well-baby protocols.

Results

Overall, an optimal level of improvement was noticed in the re-audit when compared to the baseline audit. Declination in the percentage was also exhibited in some cases. Performance for criterion on relevant clinical history taking (feeding and bowel history) slightly increased from the baseline for each of the following age groups: from 71% to 82% at 4 months, 77% to 80% at 18 months and, 76% to 81% at 30 months, however, a declination was shown at 2 months, 88% to 80%. Assessment of developmental milestones at 2, 18 and 30 months of age increased by 5% (76% to 81%), 13% (70% to 83%) and 19% (50% to 69%) respectively and, at 4 months performance remained the same at 69%.

Examination of congenital hip dislocation/abduction has demonstrated a significant improvement whereby its performance increased by 79% (8% to 87%) at 2 months, and 82% (2% to 84%) at 4 months of age. On the other hand, for age 18 & 30 months which was not measured in the baseline audit in the re-audit it was 68% and 45% respectively. Screening for vision at 2 months of age increased by 13% (78% to 91%), but there was a slight drop of 10% in the screening of hearing from 86% to 76% at 2 months.

Screening of autism spectrum disorder using a tool in children 18 and 30 months of age dropped from 86% to 83% and from 86% to 75% respectively. Conversely, request laboratory

investigation to rule out anemia has increased by 46% (47% to 93%) at 18 months and 61% (23% to 84%) at 30 months.

Table 1

Criterion	At 2 months		At 4 months	
	Baseline audit (n=51)	Re-audit (n=126)	Baseline audit (n=55)	Re-audit (n=125)
History & Examination				
Relevant clinical history taken (feeding and bowel history)	88%	80% ↓	71%	82% ↑
Developmental milestone assessed	76%	81% ↑	69%	69%
Examine for congenital Hip dislocation/abduction	8%	87% ↑	2%	84% ↑
Screening				
Hearing screening requested	86%	76% ↓	n/a	n/a
Vision screening performed	78%	91% ↑	n/a	n/a

Criterion	At 18 months		At 30 months	
	Baseline audit (n=73)	Re-audit (n=124)	Baseline audit (n=66)	Re-audit (n=102)
History & Examination				
Relevant clinical history taken (feeding and bowel history)	77%	80% ↑	76%	81% ↑
Developmental milestone assessed	70%	83% ↑	50%	69% ↑
General physical examination	92%	92%	76%	79% ↑
Examine for congenital Hip dislocation/abduction	n/a	68% ↑	n/a	45% ↑
Screening				
Autism screening done by using tool*	86%	83% ↓	86%	75% ↓
Management				
Request laboratory investigation to rule out Anemia	47%	93% ↑	23%	84% ↑

Discussion

The primary objective of this clinical audit was to evaluate well-baby care and identify areas where patient care can be improved. Infant malnutrition has been associated with increased severity and frequency of infections, raising energy requirements, while reducing appetite and nutrition absorption(6). This is ultimately increasing the risk of death. Another effect of malnutrition is cognitive development which can affect school performance and has negative effects on long term careers(6). Baseline audit evaluation elucidated clinical history taking (feeding and bowel history) need further improvement. After the baseline audit measures like refresher training to staff emphasising assessment of milestone development according to age of the child was provided as a result performance for criterion on relevant clinical history taking (feeding and bowel history) and has

slightly increased from the baseline for each of the following age groups: 11% at 4 months, 3% at 18 months and 5% at 30 months. However, a small declination was exhibited at 2 months by 8%.

Studies shows that late diagnosis of congenital hip dislocation/abduction can lead to dysplasia(7). The consensus is that diagnosis after three months of age is late(7). The baseline shows screening results for congenital hip dislocation/abduction were found to be low (8% and 2%) at 2 months and 4 months respectively. Action plans such as an official communication via memos to all clinicians to perform screening for congenital hip dislocation/abduction according to child age is recommended in the guideline followed by repeated official reminders to the clinicians. As a result, compliance has increased dramatically by 79% to reach 87% at 2 months. Similarly, at 4 months it increased from 82% to reach 84%.

Autism Spectrum Disorder (ASD) is a development disorder that hinders an individual's skills in socialization, creates repetitive behaviors, and impacts expressive or verbal communication with disruptions from moderate to severe. Studies say symptoms of autism are more visible and easier to identify in children two to three years of age. As per the study done in USA by Towle, P., Patrick P, one out of every 68 children has autism(8). Medical experts and psychiatrists across the world developed screening techniques to identify autistic traits in their primitive stage for further treatment(9). Autism screening was one of the important criteria for the baseline audit, the audit findings showed 86% of records showed a screening test for autism and added to that 86% of records had evidence of a hearing test conducted and 78% of records had evidence of vision screening. For further improvement an action plan has been developed with the help of a clinical information system to give an alert function to request Autism screening and related screenings according to the child's age. However, in the re-audit the percentage of compliance was not up to expectation; on contrary, a small declination was exhibited. The baseline audit recommendation to develop an alert on autism screening assessment with help of the Clinical Information System is not fully implemented, which is expected to be the foremost reason for the declination in the re-audit. A further action plan to speed up installing the alert system and officially mandating the use of the ASD tool by physicians will be implemented and effectiveness of this will be measures in the next audit cycle.

Iron deficiency among children is one main factor that leads to retardation of normal growth. Insufficient intake of iron, and excessive intake of cow's milk leading to gastrointestinal loss, and rapid growth are some of the reasons. The only way to prevent iron deficiency related complications is investigation and elimination of the cause leading to iron deficiency, replacement of deficiency, improvement of nutrition and education of the patient and family(10). A baseline audit conducted shows ordering laboratory investigations to rule out iron deficiency anemia for 18 months and 30 months are 46% and 61% respectively. To improve the monitoring of iron deficiency with help of the Clinical Information System developed an alert functionality to request for Laboratory investigations for Iron Deficiency Anemia screening according to the child's age, has been developed and implemented as an action plan. In the re-audit the monitoring of iron deficiency has been improved at 18 months and 30 months to 93% and 84% respectively.

Conclusion

Impactful audits with actionable recommendations make a real difference in practice and compliance. In conclusion, action plans implemented further to the baseline audit are effective in increasing the compliance in most of the areas. Re-training for the staff and reinforcement of appropriate documentation was implemented. As a result performance for criterion on relevant clinical history taking (feeding and bowel history) has slightly increased from the baseline for each of the following age groups: 11% at 4 months, 3% at 18 months and 5% at 30 months. Official reminders pertaining to screening for congenital hip dislocation/

abduction according to child age compliance has been increased dramatically from 79% to reach 87% at 2 months. Similarly, screening at 4 months increased by 82% to reach 84%. Creating an alert with the help of the CIS improved timely laboratory investigations for Iron Deficiency Anemia. Although, an action plan has been developed with help of Clinical Information System (CIS) to give an alert function to request for Autism screening, this action plan could not be implemented fully before the re-audit as a result the percentage of compliance reduced to 83% in 18 months and 75% in 30 months. A further action plan will be developed in order to speed up the full implementation of the alert function in the CIS. Also, a further action plan will be developed to improve those criteria which exhibited low performance in the re-audit and will be measured in the next audit cycle. This cycle will continue until an optimal level of compliance is reached.

Implication:

The continuous cycle of clinical auditing is a framework that can identify the needed improvement areas in well-baby services, and help in establishing the SMART action plans to sustain the improvements.

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